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THE JOURNAL OF PHILOSOPHY

A STUDY OF A PHILOSOPHY OF THE DETERMINATE.[1]
II

POTENTIALITY

THE recognition of potentiality arises in part from the contradictions which result from an attempt to understand change; more directly, however, from such an examination as we have carried out of the situation. Since the activity, actuality, or what-is-going-on (in what from opposite points of view are called the active and the passive) is really one and single, we are led to the relational or dynamic rather than the qualitative approach. This means that instead of considering activities as qualifying their subjects, we see them as a kind of relation between two or more subjects in a relatively closed whole; hence it becomes clear that the relation rests on grounds within the subjects, i. e., it is in virtue of certain elements or parts of their character that they participate in the activity. Thus arises the idea of the subjects as potential with respect to the activity in question.

The situation is a whole, knit together by the fact that everything in it participates somehow in the single activity, either by containing one of its more important grounds, or by being some sort of necessary condition. But the things which while participating in the activity make the whole actual, have an existence outside it, apart from engaging in that activity. What *then* is the nature of the *grounds* of the activity, i.e., those elements of their character in virtue of which they take part in the activity? Aristotle's position (stated in this more recent terminology which he himself does not, of course, use) is that a thing's being such as to participate in a particular kind of activity or actuality is as much a real property of the thing as any of its qualities or the material of which it is composed. In fact these properties constitute its nature and *are* it in so far as it is intelligible. To understand any thing we must know its function or end, that is, what it is naturally capable of doing.[2] There are real grounds in things, and things are, so to speak, qualified by the possibility of hypothetical judgments about

[1] Continued from preceding issue, pp. 29–41.

[2] The sharpness of a knife is as real as the precise angle made by the two sides of the blade; but sharpness implies cutting.

them. With respect to any activity, therefore, we may speak of potentiality in the things which make up the whole situation, at the time when they are apart from it. Thus man, in virtue of his eyes, has the potentiality of sight; likewise of thought, etc. Objects are visible, i.e., have the potentiality of being seen, the actuality of which is color. When these potentialities of man and the object are actualized (when there is light), we have the single activity or actuality, viz., seeing-and-being-seen.

This is one type of potentiality, corresponding to what we have (in part I) called the single simple activity, that which begins and ceases leaving the grounds for the most part [3] unchanged, so that the activity may be resumed in the same manner. It does not go from one determinate contrary to another, altering the grounds in one or both of the participants and resulting in a product by the transformation of one or both of them. The activity, e.g., seeing, thinking, understanding, living well and being happy, seems to contain past and present in one, having no definite end different from what precedes it. Very different is the example of learning or building. The student, when he has finished learning, does not straightway lapse into the former state of potentiality with regard to that activity. He has changed; it is not therefore a simple activity, but change or movement, i.e., a complex one. Building illustrates this well: it is in a sense the simple activity of the builder (assuming he is not learning but has a fully developed capacity for building), but not of the materials. In their case, it is change, movement or complex activity. The grounds become exhausted; the materials begin as potentially a house and end as actually a house. Thus there is a growth, a definite product. In qualitative change there is an end in the contrary; in motion in space there is a different place.

So far we have found two kinds of potentiality, corresponding to the simple and complex activity, respectively. They are best illustrated by Aristotle's favorite distinction between the man who knows but is not using his knowledge, and the man who is learning. The actuality of the former is understanding, of the latter, learning. The distinction is between the exercise of a fully developed capacity and the exercise which develops the capacity. Both have this in common, that they can be fully actualized. The movement or complex activity, as an actuality of the one type of potentiality, tends to bring it to completion and so put it out of existence. The potentiality for movement has, therefore, for the most part this distinct character, that it is of finite duration. On the other hand, the

[3] For the most part, because in mortal affairs there is never any absolutely simple activity. We must suppose, for example, that there is always some change, however infinitesimal, in the ground (e.g., within the eye on each occasion of seeing), but relatively we may speak of simple activity.

actuality which is simple activity, needs no duration to complete it; it is complete at any moment. It has no limits such as a beginning and end in contraries. If a movement goes on after it has reached the contrary, and is still the same sort of movement, it is only by repeating what has happened already. But this is not true of simple activity. Each moment is not a repetition of the previous one; all division of it while actual, is entirely arbitrary. It seems almost to have a timeless character, to transcend time, or more properly speaking, the concept of time has no application in its description.[4]

The fact that movement, process or change is from determinate contrary to determinate contrary (i.e., there is a definite beginning and a definite end of that movement as such) and that continuation of the same kind can only be secured by repetition within the same or different matter, leads us to a third type of potentiality, which turns out more relevant to the problem of the infinite. Only in a few cases (e.g., circular motion) is immediate repetition within the same material possible. In linear motion it takes the form of producing a finite straight line. If, therefore, there is a type of potentiality corresponding to simple activity, and another to complex activity or movement from one contrary to another, there should be a type of potentiality corresponding to the actuality which is repeated movement, whether it be immediate repetition or at intervals. In immediate repetition it will give us a series *ABCD* . . . in which an actual or completed *A* contains the potentiality of *B*, an actual *B* of *C*, an actual *C* of *D*, etc. For example it is the traversing of a distance *A* which makes possible the traversing of the next distance *B*, whose traversing in turn makes possible that of the following distance *C*, etc. It is obvious that the potentiality of the whole series (to take an instance where it comes to an end) can not be said to lie in *A*. This would be a misuse of the idea of potentiality, just as it would be wrong, as Aristotle recognizes, to say that earth is potentially a man (*Metaphysics*, $\theta - 7$). It is not, until it has become seed, and perhaps not even then. It is not, so long as there is some foreign medium or material in which there must be a change. For example (on Aristotle's view), earth is potentially bronze, and bronze is potentially a statue, but earth is not yet potentially a statue. One thing is potentially something else only when the latter will be the result of a single process or activity in which the former can engage; but if several processes or activities are neces-

[4] This would be an important point in a discussion of Aristotle's theory of time. For if time is "number of movement in respect of the before or after" it is not number of simple or pure activity; and the latter can only be considered temporal by correlation somehow with an order established on the basis of movement.

sary (as earth becoming bronze, bronze a statue) we can not significantly speak of potentiality.

This conclusion is of the very greatest importance, for it shows that the concept of potentiality and all that depends on it may not be stretched too far. Hence the concept of the nature of anything as a pattern of potentialities can not be carried more than a step from the situation which is the exercise of these potentialities. As a result, a nature remains a pattern of specific potentialities, potentiality is always for something determinate, and there is an inevitable plurality of natures; though no doubt it is possible to trace a hierarchy of common characters. But potentiality as such, becomes meaningless, unless referring to the connection of subjects and the activity for participation in which they already contain grounds without having first to undergo other processes. Potentiality is, so to speak, only for one step at a time.

The third type of potentiality which we are considering is based on the peculiar characteristic of the type of series noticed above, viz., that the same process is repeated and is due to the same set of conditions as the previous term in the series with only the added condition that the previous term be complete, i.e., that the previous movement be actually done. The examples given by Aristotle are day, the Olympic games, the generations of men, the division of magnitude (*Physics,* III–6). There is day both in the sense that it is actually a day now, and in the sense that when one day is done, another follows inevitably after an interval from the complex system of conditions which generated the previous one. Strictly the ground of the terms of the series (and therefore the potentiality) lies not entirely in the preceding actual terms, but in the system with which the terms are inextricably bound up, day with the revolutions of the earth in relation to the sun, the Olympic games with the religious beliefs of the Greeks and their conventions about the expression of these, the generations of men with human nature, physical structure, desires and capacities and their mode of expression, together with terrestrial and social conditions, and the division of magnitudes with the nature of magnitude as continuous and the will of the divider to continue in practice and thought.

The manner in which this type of potential existence differs from the second kind is that it can never be completely actualized. The potential existence of the statue in the bronze is actualized when the movement of the sculptor is finished. But day, the Olympic games, the generations of man, the division of magnitude, have no completion as such. It is true the earth may change its course, the Olympic games be abolished, man completely wiped out, and mind be weary of division and cease to think of magnitude at all. The

supporting system of conditions may be swept away. But this is as irrelevant to the discussion as the death of the sculptor and dropping the bronze to the bottom of the sea. The point is that given a certain system of conditions found within existence (but like all existence, of course, subject to change), the type of movement resulting repeats itself continually. The simplest instance would be the swinging pendulum freed from the friction of the air. Given the force of gravity, the down-swing conditions the up-swing, the up-swing the down-swing, and so forth. Continuous repetition of a process, then, is an actualization which is always going on but is never complete. The potential existence, which is therefore the third type we have discovered, differs from the others in never being completely actualized.

This ends our rough analysis of potentiality and its chief types. To carry it further would lead us too far astray though the path is full of interest. There remains, for example, the analysis of the cognate concept of power, the derivative concepts of ability and capacity, and of possibility, perhaps even of probability on this basis; then the growth of the concept of responsibility from that of ground and chief ground, and its final application in ethics. An interesting semi-linguistic, semi-logical study would be the examination of terms and concepts involving potentiality in their meaning, especially those which have suffered from concretion or reification due to a "qualitative" approach. For the present it is better to turn back to the three conceptions of the infinite which a philosophy of the determinate must explain in its own terms. Let us therefore see how far these have been clarified by the analysis of potentiality. In part too they will serve to complete it.

1. The Infinite as Actual

While hitherto this might be shown to be impossible by many proofs in *reductio ad absurdum,* now the nature of the infinite as potential supplies a positive rebuttal of its claims. For the true character of the infinite may be understood from the third type of potentiality of which it is the chief illustration. The infinite is not potential as the visible, which may actually be seen, nor as the building-materials which may actually be used up, but the nature of the infinite is that the process implied should never come to an end. (This is why the actualization of a potential infinite is impossible, e.g., why a line can not be composed of an actual infinite number of points.) Nor is this " never " a mere conclusion from the fact that it has not yet come to an end, but a recognition that each step in the process, each term in the series, is such as to imply the possibility of the next. The attribution of infinity implies this proposition establishing a universal and necessary connection. Only

this can generate a necessarily unending series. But infinity is not primarily attributed to the process; rather it is a character of the determinate subject within which or about which the process takes place. Only derivatively can it be referred to the process. If therefore one were to ask what it is which is infinite, the inevitable reply is not any actual infinite, but the finite or determinate subject; and it is called infinite because it contains the ground of some process which is such that each term in it would imply the possibility of the next. Given such a situation, we predicate infinity of the subject. The emphasis on the necessity of a determinate subject for the proposition in which infinity is ascribed, leads to important conclusions. For one thing, it shows that the infinite is potential, not actual; still more it does away with the strict and exhaustive disjunction "finite or infinite." For it shows that finite (of quantity) is just one type of finite in the sense of determinate; and that infinity is not the opposite but is a character of the finite. Certainly Hegel's language implies the same, when, for example, somewhere in his *Philosophy of History* he speaks of man, finite when regarded in himself, being at the same time "a fountain of infinity in himself." On the other hand, it might be claimed that in the sense in which finite and infinite are opposed as an exhaustive disjunction, finite presupposes infinite, since it acquires meaning only from the act of stopping short in a series in which each step implies the possibility of the next. In that case finite must be distinguished altogether from determinate. The latter is then prior to infinite, which in turn is prior to finite.

On this theory, then, infinity is a character of some determinate subjects, in virtue of which they participate in certain types of activities and hence of situations, viz., those in which the same process is repeated and each term of the series implies the possibility of the next. Thus to predicate infinity is to ascribe to a subject a type of potentiality. But potentiality, we have seen, is a concept derived from and referring to situations. Hence infinity can not be opposed to the determinate. Any actual infinite in this sense is therefore an unwarranted assumption, that is, simply an unmeaning exhibition of impatience in wishing to traverse what by its very nature can not be traversed. The infinite can not be actual either as an attribute of any ultimate stuff of some other nature, nor as the complete actualization of a potential infinite. Perhaps it may be the ultimate stuff itself, or the ultimate subject.

2. The Infinite as Ultimate Subject

This position may seem to establish itself firmly by a criticism of the situation as outlined above. To receive it at its strongest, let us put it into the form of an accusation:

"You have not," it will run, "carried your analysis of the situation far enough. For you have been content with the distinction of activity and participating subjects as if it were ultimate. You have been emphasizing too much the activity. If you consider the subject, it is obvious that determinate can not mean the same in its case. You would claim that as far as the subject is concerned, you need only describe what it is and what it does, i.e., the character of the subject and the types of activities in which it may participate or situations it may enter. No doubt you may find support for this view in Aristotle, who in the *Posterior Analytics* gives as the two branches of an enquiry "if it is" and "what it is," and the latter being the nature of the thing refers to its potentialities, i.e., what it can do. Spinoza too may seem to support you by his frequent coupling of "exists and operates." But these also provide the correction of your view. For the character of the subject is just this nature or this pattern of potentialities. To describe the determinateness of the subject by giving what it is and what it does, is tautology. For it *is* what it does, i.e., that is its nature. Therefore we are left more as the above remarks of Aristotle and Spinoza would indicate, with the distinction not *what* it is and what it does, but *that* it is and what it does. This means that the subject as distinguished from its activities is just subject and can in no other way be determined. Hence it is the real indeterminate which is presupposed by the determinate situation.

"Or, to look at it in another way, the distinction between what a thing is and what it does, may be taken to arise from and refer to any single situation. Here what it does is the activity of that very situation; what it is is the pattern of potentialities for other activities, for other situations into which it may enter. For the analysis of potentiality began with the assumption that subjects participating in any situation and making the whole actual, have an existence outside it. But on the philosophy of the determinate, this can only be in some *other* actual situation. Therefore the distinction is one of levels within the field of activities, rather than of activity and a subject which is something else. In *Axb, A* must mean 'the thing that does *p, q, r.* . . .' That is, *A,* in so far as it has any determinate character, is known as a subject in other determinate situations. The implied belief is that there can not be an activity without there being that which is active or participates in it, just as there can not be a relation without terms related. But if the subject is made determinate only by the possibility of description of the activity, it is not in itself determinate. Nor would an account of the 'ground' of any activity be sufficient; for it involves other activities. Ultimately even to call anything only a

colored thing means it is a subject capable of entering into the seeing-and-being-seen situation. So too the search for a prime matter underlying all things was a search really for a single type of motion or behavior involved in all situations. In the same way molecular and atomic analysis can yield no subject, but only types of operation or activity, that is, types of situations. All these, it follows, can not be said to characterize the subject in itself, but only to be its activities. At every step in the analysis the subject recedes. But it can not be eliminated. If our knowledge is almost entirely of the determinate, that is, of situations and their common characters, it gives us no reason to deny reality to subjects which are known only in these activities. These subjects are indispensable to the understanding of the situation, and as we do not know them in themselves, we are at liberty to speculate whether they may not all be one; at least we know no other character than the common one of being subject. Here then is the real infinite, the indeterminate, the ultimate absolute subject."

This criticism of the philosophy of the determinate contains much that is true and nothing that is unimportant. But it rests on certain assumptions which must not be overlooked. Its criticisms are one thing, its constructions another. The latter assume quietly that there is a relation between the subjects and their activity, hence that they have an actual existence apart from all activities (on the ground that terms exist independently of the relations they enter into). This leads to a similar position to that in which Locke found himself when on assuming qualities as independent he was at a loss to discover what they inhered in (where inhering was their relation to the subject, a relation whose meaning Berkeley rightly challenged). But, as we saw in discussing the situation, there can be no relation of subject and activity, nor is participating in an activity itself an activity. Rather the categories in which the description should be made, are potentiality and actuality. The situation is the actuality. The subject is not a something outside the situation, nor is the latter an attribute of it. A subject is never anything but a subject *of* or *for* some activity. This, incidentally, provides the activities or groups of them as distinguishing marks, entitling us to acknowledge the plurality of subjects. (And if there is no determinate subject which is the whole, and no determinate activity of it, we are not justified in assuming an ultimate actual subject.) The subjects therefore are the potentialities of the situations. Lest this seem circular, since potentiality was explained with reference to subject, we may put it as follows:

Any particular subject is known through an inference from various situations. Each contributes to our knowledge of the subject, but

not as something beyond. An analysis of any situation shows us things actual in a determinate way. The only implication is that they may be actual in other determinate ways. Hence the conceptions of potentiality and of subject (and thus of its nature) grow up *pari passu* from experience of and thought about situations, i.e., from our own participation in certain types of situations. Reflection on any situation, therefore, reveals actuality and potentiality. But this all comes from the analysis of situations, nor reveals anything prior. Thus, whatever difficulties still remain, are within the field of the determinate. An infinite in the sense of ultimate indeterminate subject is not implied by the situation.

3. The Infinite as Substance or Nature

The issue here is twofold, (*a*) whether situations imply nature as prior, or nature implies situations as prior, and (*b*) whether there is a plurality of natures, or how far nature can be conceived as one and infinite so that all flows from its potency.

(*a*) This is a difficult problem having many obstacles to its solution. Certainly the Aristotelian conception of a thing's nature as that in it which determines it to action, i.e., as a principle and cause of motion and rest, is open to ambiguity in interpretation. Its nature must not be conceived of merely as a group of universal or general laws of its behavior (even though as Aristotle recognized, it is because we observe these uniformities that we call this behavior natural and others unnatural). For laws of nature themselves do not determine to action, but describe a state of affairs in which there is such determination, nor are laws nature, but laws of nature. That in a thing which determines it to action is itself part of the thing. The difficulty becomes clearer with a simple illustration. What determines a knife for cutting is the very acute angle made by its two sides, also the hardness of the material. These two attributes are therefore the elements of the nature of the knife, which means simply that in virtue of these, the thing which has also other attributes, participates in the cutting activity. It means too that all things which have these attributes are so far knife-like, and all things which are constituted so that these are the dominant properties, are knives. And to speak of these being the dominant properties means that the thing has not such a large share in any other activity as it would have in cutting.

Taken with reference to the thing merely as a thing, these two attributes have no priority over their fellow-attributes. But they do constitute all that is common to things which play a certain rôle in the cutting activity. Hence they are the grounds for the activity, and their subjects are knives, or so far knife-like. To decide which

of the latter anything is, obviously one would have to know the types of activities it can participate in, and if cutting were its chief one, or a complex one from which the others result by vertical division, it would be a knife. Nothing, in a sense, prevents a thing from having several natures. But its proper nature, as such, is a pattern culminating in its peculiar one. (Similarly, the proper species of an individual is the infima species, not any sub-genus.) Thus man is as capable of participating in the activity of stopping bullets as he is of thinking. Yet we call the one more adequately descriptive of human nature, because he need only be an extended solid to take part in the other.

It is clear that a classification of natures is at bottom one of potentialities for types of activities. This is what we meant by speaking of a nature as a pattern of potentialities. Things are grouped into a class because they participate in the same kind of activity (in one or many). Then the grounds within them for that activity are ascertained. These constitute their nature, not merely as attributes, in which position they enjoy no superiority, but as *attributes which determine the subject for its chief activity or activities,* i.e., as grounds. A nature is therefore a pattern of grounds, (remembering that ground means ground for). In the knife, the nature is readily discoverable since its chief potentialities are few. Man's nature is exceedingly complex, and any attempt to limit its description (as when his nature is said to be to glorify God, or to develop his thought, or to eat, drink, and reproduce) is inadequate because the limitation is arbitrary. To discover his nature one must examine fully the types of activities in which he is capable of participating.

Such a search in a complex being can proceed simultaneously in two directions. Actually observed activities lead to an examination of grounds, and grounds elsewhere learned lead to an inference of possible activities. This brings us to the question with which we began here, whether the situation implies nature or *vice versa.* Certainly at first sight the result of the investigation may seem to be that the situation is prior, and that natures resting on grounds, are inferred from and refer to situations. This, however, leaves us open to the charge of committing the genetic fallacy; for natures, though inferred, may be apprehended as prior. On the other hand it still remains true that grounds as part of a nature are not mere attributes of the subjects, but grounds for some activity. The most likely way out of the difficulty is to recognize that our question has no clear meaning. For we have not in considering natures (just as before in considering subjects) really stepped beyond the bounds of the situation. Its analysis led us to recognize within it the one activity

and the various subjects with their grounds for that activity. A pattern of these grounds constitutes the nature. And usually the whole nature may be considered the single ground within the subject of a complex activity, whereas the various grounds which are its elements are severally grounds for activities into which the complex one is vertically divisible. Such is the case, for example, where "living" is the single complex activity of the subject man, and human nature its ground, divisible into elements which are grounds for the manifold human activities.

If this is so, it is vain, having distinguished two aspects of the situation, each of which implies the other, to ask which is prior. To demand priority for the nature would be a similar mistake to asking priority for a subject as distinct from any of its attributes. The error again would be the transcendental application of immanent concepts.

(*b*) Having clarified our conception of a nature, it remains to examine how far nature can be one and infinite in the sense that everything determinate flows from its potency. If our analysis of potentiality and of nature has been correct, this can not follow unless the world may be considered a determinate subject, the sole participant in a determinate activity. For a nature was found to be a pattern of potentialities in a single subject for a determinate complex activity; and so there can only be one infinite nature (infinite indicating that it is not for any single activity, but for all possible ones) if the world is a determinate subject, and all that happens be considered the determinate activity of "happening," i.e., "reality" the subject and "being" the activity. But as we have seen, the world is not a determinate subject, nor is there one all-embracing complex activity, vertically divisible into the various activities we behold. Furthermore an activity is scarcely possible with only one participant. Nor should it be claimed that the world has a single activity, even if it be not all-embracing, since "happening" is a common character of all situations, or what amounts to the same thing, fitting into or being a situation is common to everything. For this rests on a confusion of nature with what is common. As we saw in discussing the example of knife, it was not solely because two attributes were common that they constituted the nature of knife, but because in addition they were grounds for the dominant activity. Hence to be common does not necessarily mean to be an element of the nature. We may speak of a nature only if there is a pattern of grounds or a single potentiality. Now things are thinkable (or conceivable or knowable) in so far as they have elements in common; it is often repeated that the mind's task is to apprehend unity in plurality. Thus in one sense what is common constitutes a

ground, that is, for the activity of thinking-and-being-thought. But since being thought is not, unless perhaps on an Idealist position, the dominant activity of any thing, being common to things need not by itself mean belonging to their nature. "Being common" is related to "belonging to their nature" as genus is to species, and the differentia is "being also a ground for the dominant activity." It follows, since being a situation is not itself a situation, nor being an activity itself an activity, that all situations have a common character, but not a nature. The latter term may only be used by analogy with reference to thinking as the activity. Similarly the instances of a type of activity, e.g., cutting, having something common in virtue of which they are thinkable, but not strictly a nature. Knives have the same nature, and since nature is a species of the common, are thinkable in virtue of their nature. Let us set aside the term "structure" to mean that which things have in common in virtue of which they are thinkable. This raises its own questions such as wherein lies the unity of a structure; but since the problem of structure is intimately connected with that of method, we shall postpone it to the discussion of the clarification of situations. It is sufficient to note here that whereas all situations may have a single structure, such as the one we have indicated, they do not flow from their structure in the sense in which things do from any nature (which is a potentiality of the subject), nor are determined by it. Therefore the uniformities exhibited by things in so far as they manifest a single structure such as being a situation, or such as the so-called laws of thought indicate, differ from the uniformities of behavior on the basis of which natures are inferred. The nature of a thing explains its actuality and determines it in a sense in which its structure does not. Indeed there is never a question of structures as such [5] determining that of which they are the structures.

We may therefore conclude that if our analysis of potentiality has been correct, there is no meaning to the phrase "one infinite nature from whose potency all things flow." Thus the determinate as such implies no infinite in any of the three senses suggested. These are either meaningless, or (chiefly) explicable as arising from and referring to situations and losing significance without this reference.

If it be complained that this investigation points towards the impossibility of any ultimate explanation for which the mind may crave, it can only be said that the slow steps of self-restraint and constant enquiry as to meaning seem of more value than comforting though rash assumption. Again, a philosophy of the determinate leaves the door open to further determination, which will itself

[5] "As such" means unless it happens to be also the nature.

reveal its end, if and when it does end; and this will be learned only in the investigation of particular situations. Finally, it points toward a method of clarifying our ideas, which is at the same time a method of clarifying situations. Its examination will be found to coincide with an analysis of the thought situation itself.[6]

ABRAHAM EDEL.

BARNARD COLLEGE.

TAKING THE CAUSAL THEORY OF PERCEPTION SERIOUSLY

I PROPOSE in the sequel to take the causal theory of perception seriously, and to let the argument unfold itself, like a system of mathematical propositions, from intelligible though undefined primitives, with as little taint of traditional preconception as possible. My method will be to accept as facts what appears to most of us in our unsophisticated moments to be facts, and to render their primary intelligibility more explicit in symbolical discourse. It should be clear from this statement that the method is not the (what-should-be-by-this-time-outworn) method of doubt. Any real, intelligible fact is, in virtue of its reality and intelligibility, dubit*able*. For the satisfaction of those who like to know the end of the story before they begin at the beginning, I shall state the conclusion to which I have before observed the argument lead itself in my intellectual laboratory: the causal theory of perception is one which renders intelligible the fact of *direct* perception. Now let us follow the argument to this unorthodox conclusion.

Accepting as our intelligible though undefined starting-point the fact of causal transaction, we enquire into what this involves. (1) Where there is no spatial interval between the cause-term and the effect-term (henceforth these may be referred to as C and E respectively) there can be no causation-relation (symbolized by $>$ or $<$, $C > E$ meaning that the cause progresses into the effect, and $C < E$ meaning that the effect regresses into the cause). Only as long as C and E can be said to be spatially distinct or "other," i.e., *two* entities or events, can the relation $>$ hold between them. Even though it be true that C and E be spatially coincident in one reference-frame but not in another, we still assert that $>$ possesses no physical meaning in the reference-frame in which the loci of C and E exactly coincide. We find in the first place, then, that spatial otherness is involved in causal transaction.[1] Let us call this an aspect of

[6] To be concluded in next issue, No. 4.

[1] Cases of immanent causation appear to be exceptions. Transeunt causation or *trans*-action obviously involves space-intervals, but a single term, enduring in time at one place, may also be at one moment the cause of what it is

the extensional structure of causal situations. (2) In the absence of any temporal interval between C and E, $>$ again becomes a physically meaningless symbol. The assertion of the absolute simultaneity of the causally related events C and E, admitted to be spatially removed from one another, is an assertion of infinite velocity, which is no velocity—in the sense of *transition*—at all. Being in two places at once is neither effluence nor influence, and causation that is neither effluence nor influence may be a kind of logical implication between propositions of an extra-temporal order, but it is not the physical operation of one fact upon another. Besides, relativity physics finds that no physical influence has infinite velocity. It might here too be remarked that though two events may be temporally non-coincident in various reference-frames in which the symbol $>$ could be said to possess physical meaning, yet in the frame in which they coincide temporally they can not be said to stand in the relation $>$. We discover then in the second place that C and E, in a genuine case of $C > E$, must be differently dated. This temporal otherness is also an aspect of the extensional structure of causal situations. We shall not in what follows engage in the futile effort *temporally* to identify C and E where they function as terms in perception. Neither shall we fall back on the untenable concept of temporal continuities—the same futile effort in another dress—after having so clearly observed the atomization, to use Whitehead's phrase, wrought by the spatialization and temporalization of fact. Let us call this spatio-temporal otherness of particular existents the extensional dimension of nature. In so far as there are terms and terminality, and "incurable atomicity," nature will exhibit an extensional structure, and can rightly be read in extension. And if the extensional dimension were absolute, we could with Newton speak of space as a rigid, mathematical receptacle comprised of absolute points or positions, loci which would satisfy the ideal of terminality absolute. To contend that such a conception, however, does not possess physical meaning is to introduce and legitimatize a natural dimension other than the extensional. (3) Where there is no continuity between C and E, there is no case of $C > E$. That is, unless there is some genuine connection between C and E, unless in some sense the being of one participates in the being of the other, there is no physical causation. Now we have forewarned ourselves not to seek continuities in extension. The extensional, with its space-

the next—granting a "next"—moment. Do we here have $>$ without the space-interval? Yes—only if position is absolute and independent of the time-factor. This not being the case, it might rightly be contended that even here there is spatial otherness, though the interval between C and E in such cases is more obviously of the temporal order. Our argument is concerned with the kind of causation that is unmistakably transaction.

time, is the terminal. And in so far as the extensional is also properly the mathematical,[2] there is no mathematical continuity. As long as there is, rigorously speaking, a term or series of terms, there is, by definition, a "next," hence in *this* sense no continuity. Mathematicians themselves teach that the continuity of a "compact" series is not essentially of the terms qua terms, but of the order. For should the continuity infect the terminality of the terms, they would be dissipated, nor could they then be rearranged into various discontinuous series.

At this point our argument unfolds into the proposition that, besides the extensional, there must be an intensional dimension of nature. That probably is what even the mathematical physicists are finding out in quantum mechanics and in relativity research generally, though they have not as yet systematically recognized the intensional structure of physical existents. The Principle of Indeterminacy and the General Theory, in affirming the absence of any absolute "where" or "when," i.e., in denying absolute extension in our sense,[3] are merely stating that to read fact in purely extensional terms is to omit something factual. It is to get into the difficulties that one encounters when one reads classes "in the *pure* extensional way."[4]

But to return to our theme of the moment. If the causal relation $>$ has an ontological status, this means that there is a genuine and natural community of the terms C and E. It involves the existence of a *continuum* of causally efficacious events. Let us without further ado call this feature of communion, this characteristic of being beyond extensionally determinate loci and dates, the "transitive being" which any physical existent enjoys or suffers. And such transitive being, which we shall also call logical, is in virtue of what we have named the intensional dimension of nature.

[2] Ramsey, "The Foundations of Mathematics," *Proc. London Math. Soc.*, Series 2, 25, 1926, p. 349. "Mathematics is essentially extensional." Ramsey distinguishes "functions in extension" from "predicative functions," which distinction is not unlike the one I make below between extension and intension. But this would become clear only if I isolated the intensional structure and formulated it in purely logical propositions.

[3] With reference particularly to quanta, I should suggest that the attempt to reconcile corpuscularity with undulation would become less embarrassing if the physicist would recognize a dimension of "wavicles," which is, taken strictly, neither spatial nor temporal. This intensional or logical dimension would constitute the "transitive being" (undulatory property) of the wavicle, and the extensional its corpuscularity. See below.

[4] Russell, *Introduction to Mathematical Philosophy*, p. 183. Italics in text. The reader has noticed by this time that I am assuming a connection between extension in the logical sense and extension in the physical sense. It is my belief that the extension of general terms is but a symbolically rarefied physical extension, which is the discreteness and particularity of perceived things. But this is matter for another paper.

In the interest of those who are beginning to balk at the turn the argument is taking, another proposition formulates itself, namely, that the only way to make sense of the statement that a past and spatially remote cause is *now* operating *here* in this effect is to discover and legitimatize nature's intensional structure, whereby that which exists no longer in a mathematically determinate extensional present may nevertheless be operative in such an extensional context. If we hold to the fact of causation, we cherish the belief that what *exists* no longer according to an extensional reading of the situation *is* none the less. And to *be* in this second sense is not to be in the extensional sense. Hence the recognition of intension, of a continuous progression of cause into effect ($C > E$) and of a continuous regression of the effect out of the extensional present into the past cause ($C < E$). So in the third place, we recognize the continuities involved in all causal transactions, describe them as intensional, and distinguish them from the spatial and the temporal features of fact.

What we have *not* done, it should be remarked, is to attempt a spatial or temporal identification of C and E.[5] That would have forced us in the end—as it has most analysts of causation—to jettison the whole concept of real transaction as unfathomable nonsense. Neither did we begin, it should be no less remarked, with the notion of *absolute terms* interacting, and then try to explain continuity. Rather, we indicated the extensional structure of nature, whereby things have fairly definite loci and dates, and we sided with contemporary physics by contending that extension, or the terminality of terms, is but one aspect of existential situations, an aspect which may be *completely* isolated by mathematical analysis only at the loss of physical meaning. We did not begin by reading causal series, as Hume did, "in the pure extensional way," for it would then have become positively false to assert that C, at a spatio-temporal remove from E, influenced it. Where there are "nexts" there is, in *this* sense, no continuity. From the point of view of pure extension, Hume's statement stands unimpeachable: "Nothing can operate in a time or place which is ever so little removed from those of its existence."[6] To recognize space-time factors (the extensional) only is to preclude causation.

[5] D. W. Gotshalk, in an article entitled "Causality as an Ontological Relation" (*Monist*, April, 1930), defends the view that there is "existential continuity" between C and E, meaning thereby that there are no spatial or temporal "rifts" between causes and effects. If this implies that they are spatially and temporally continuous, then it becomes false to assert that space-time *intervals* are necessary to causal transaction, and this to me makes nonsense. But Gotshalk falls in with a long line of venerable thinkers when he makes nonsense of causality.

[6] It may be seen from this remark that, for Hume, existence meant extension

The result so far is that $C > E$ involves (1) spatial intervals between C and E, (2) temporal intervals between C and E, and (3) logical participation of C and E in one another, in the double sense of $C > E$ and $C < E$. (1) and (2) constitute the otherness or extensional structure of the causal situation, and (3) its intensional structure.

Consider first the case $C > E$ where E is an event in the system of events comprising what common sense calls an inanimate body. C participates progressively in E and E regressively in C. Hence there is logical community even on this level of physical transaction between inanimate terms. But the behavior of such terms is what classifies them as "inanimate," and it is important to determine in what this behavioristic difference consists. A body that obeys the physical laws of motion so precisely as to render its behavior predictable with mathematical rigor is indeed influenced by other bodies remote from it in space and time, but—and this is the point—the *immediate* cause of its behavior is the event or set of events that is infinitely near it in space-time.[7] Because it is not immediately motivated by appreciably past and distant factors, its behavior is mechanical. This is the meaning of "inanimate."

Consider now the case $C > E$ where E is an event in the system of events comprising an animal organism. Here again C participates progressively in E and E regressively in C. E in the case under consideration is a percipient event, and there is logical community of the terms. What is it that characterizes E in such a situation as a *percipient* event? Let us turn again to differences involved in behavior for the distinguishing mark. An "animate" body is one the *immediate* and predominating cause of whose behavior may be an event or system of events appreciably remote in space-time from the organism. Where E occurs in a highly sensitive body such as the animal organism, it places the organism directly, by intension, in the object of which C is a factor. This is awareness. Awareness is a complex of two terms ($C > E$) with the relation of intension between. We have not suddenly and *sub rosa* introduced some entirely new dimension. We state merely that whereas in the case of inanimate bodies an account of their behavior did not need to contain a specific reference to their logical community, here in the case of

absolute. Before there could be *order* (see above comment on mathematical continuity) and causation in such a milieu, some mind would have to be introduced to deploy the particulars psychologically in various configurations. Kant's innovation consisted only in holding that such mental performance was logical.

[7] According to the differential law of the General Theory, "events at one point in the space-time manifold depend only upon the events of points infinitely near it on all sides," where one precise moment (date) of the event is in consideration. See Schlick, *Space and Time in Contemporary Physics*, p. 64.

animal organisms of a sufficiently sensitized type we do indeed have to point specifically to the continuities involved in causal transaction, and state that here the transitive being (regressive) of *E* is overtly enjoyed or suffered by the organism. The percipient organism can be *immediately*, by intension only, in a past and distant object. The qualifying phrase "by intension only" is important, because it suggests the truth that such transitive being is not prejudicial to the extensional context of the organism in which the latter, as a term, is determinately located and dated.

To be directly moved by what lies beyond the space-time boundaries of the organism is to exhibit animation. And to be immediately by intension in a spatio-temporally remote datum is to suffer logical being. To be sensitive to the logical community of particular existents in such a fashion that this awareness becomes an additional factor in behavior is already to be intimate [8] with bodies and events that lie beyond the space-time peripheries of the organism. It is to "have," not merely to be, a body. The stone does not "have" a body, but merely is one, because there is nothing appreciably beyond the stone that it can *immediately* claim as its own life-history, and because it can not directly be out of and beyond its body to possess its body.

The argument through these last steps has been revealing to us that (1) the sense in which the cause is progressively in its effect, and the sense in which the effect is regressively in its cause, is not the extensional one; (2) the sense in which the cause is continuous with the effect is the intensional one; (3) the sense in which the cause is directly in, and communicates directly with, the effect is the sense in which it functions as the datum in perception, where the effect is a percipient event.

To illustrate the third step: I am observing Jupiter. The Jupiter that I directly perceive is, as located and dated in an extensional frame, approximately 390,000,000 miles from me and already roughly 34 minutes past with reference to the percipient event in my organism that communicates me with it. Extensionally, therefore, I am decidedly other than what I perceive, and no one can deny the two-fold interval that separates percipient event and perceptum. But when it is asserted that because perception must in order to occur be faced with space-time intervals just like any genuine causal transaction, therefore perceiving can not be direct, we must answer that by "direct" perception we never did mean *extensional* immediacy. Such immediacy is a kind of juxtaposition and simultaneity that never yields genuine continuity and community and always obliterates perception, which requires real space-time in-

[8] Cf. the Latin *intimare* = to press into, to install in.

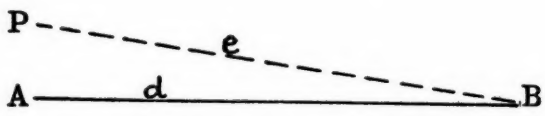
tervals between percipient and perceptum. We meant rather the only kind of directness that can characterize terms in causal connection, namely, the intensional. In order to make perception direct, we do not locate and date the datum of perception in or about the region of the retina—extensional immediacy—but rather disclose the participation of C in E and E in C which, to use Lovejoy's words, circumvents the space-time interval without annulling it and places the percipient immediately in the past and distant C.

The behavior of animated bodies is not mechanical, i.e., predictable with mathematical rigor, because what motivates an animated body involves the logical (intensional) in addition to the mathematical (extensional). That which directly moves the animal organism may be nowhere or nowhen in its immediate spatio-temporal vicinity. Hence the logical pivot for action, that by *reason* (not only be*cause*) of which the percipient organism escapes the circumscription of its extensional context and becomes rational.

The argument finally moves towards a conclusion. We have seen that objects in perception, receiving the date of those events in them which function as C, are past with reference to the percipient event E which regressively ($C < E$) puts the organism into direct communication with the percepta. Now past entities are not definitely any*where*—Caesar, for example. There seems to be a perpetual deliquescence of things out of contexts which are pretty rigidly spatial as well as logical and temporal into contexts which are only logico-temporal. If what is directly perceived is already a has-been, it will not appear in an absolutely mathematical space. The space that it will appear in will be shot through and radiant with logical significance, even as objects of memory—more definitely past entities—or of imagination are enmeshed in a logical network and imbued with "secondary" quality. Those who hold that this meaningful logical space is "imaginary" or "perceptual" or "private," and distinguish it from a real, public, physical space are plainly entertaining the old-fashioned belief that spatio-temporal existence is absolute extension. According to the result of our argument any real existent exhibits a tri-dimensional status. It is logico-spatio-temporal. On losing its spatial dimension, it ceases to exist in the full-blown sense and deliquesces into time and logic, which is the natural and objective status of past entities. With such objects the reminiscent organism may directly commune by intension after it has discursively determined their "logical places" in a natural logico-temporal context.

Having observed the argument unwind itself, let us comment on Lovejoy in order to round out the discussion and to clarify certain points that may possibly still be obscure.

If Lovejoy and other physical realists feel constrained to call our third dimension a theological mystery, explicative of nothing natural, we need but point to a necessity that even the strictest dualism in the end recognizes and copes with. Let us diagrammatize Lovejoy's perceptual situation to drive home our argument.



A is the animal organism registering stimuli emitted from the physical object *B*. *P* is the set of emergent trans-physical sensa generated by physical agencies. *d* is a causal relation in space-time. Between *A* and *P* there is a one-way causation from *A* to *P*, but as this is a peculiarly embarrassing kind of causality, let us in all beneficence omit it from our diagram. *e* is *P*'s "transcendent reference," the relation of intending, a relation that is, physically speaking, nowhere and nowhen, and in virtue of which, things at last, on a supra-spatio-temporal level, escape their simple location and share in one another's being (*The Revolt against Dualism*, p. 321).

Now just what has Lovejoy done and under what compulsions? He has, by an analysis based on the concepts of Newtonian physics, extruded that essential feature of the natural physical world whereby things are not simply located. This he relegated to a psychical realm, being unwilling and unable to annihilate it altogether, and dubbed it "knowledge," that "phenomenon by which the simple location of things is circumvented without being annulled" (p. 315). And why did he feel compelled to do this? Because things in space-time do indefeasibly present a genuine otherness or stand-offishness, thanks to their spatio-temporal structure. But any natural, causally efficacious existent, or complex of such existents, exhibits also a no less genuine community, a structure by virtue of which they are not *simply* some where or some when. This is a conclusion to which contemporary metaphysics is invited to come by contemporary physics, whether or not the latter as yet recognizes a third fundamental dimension. Whitehead accepts the invitation, and suggests his doctrine of the extensive continuum.[9] Lovejoy rejects the invitation, and, to provide for the participation of individuals in one another's being, is obliged to make an exit from physical nature in which bodies are simply located, and enter a psychical nature where otherness is circumvented. In other words, all significant *reference* and all secondary quality—both of which constitute the two aspects

[9] Generally speaking, where Whitehead uses "extension" to denote the potential, continuous, and indeterminate, I should, in accordance with the terminology of this paper, write "intension."

of what I call the logical dimension of things—are lifted by abstraction from the realm of real things and isolated in a world apart.

Now Lovejoy, arguing from the fact of causality, locates (?) the perceptum *P* on the side of the percipient *A* (in *A*'s perceptual space) and assigns it the same date as that of the effect of the reception of stimuli from the physical object *B*. Then, in order to reestablish community with the causal event *B*, which is past and distant, he postulates between *P* and *B* the logical—or epistemological—relation *e* of "transcendent reference" or intention. He refuses this relation a status in the natural order of physical things.

We, arguing from the fact of causality, identify *P* numerically and qualitatively with the past and distant causal event *B*, holding that the logical relation *e* is already involved in the causal relation *d*. We contend that *if B really stimulates A, then in some sense the being of B must participate in the being of A*, and *vice versa*. Now, such continuity or participation can not possibly be spatial or temporal. *B* certainly is not *where A* is or *when* the act of awareness at *A* is. Space-time constitutes their otherness-structure, and to assert immediacy in this sense of juxtaposition or simultaneity leads, we have seen, to disastrous dilemmas. Now, the sense in which the one is an immediate datum for the other is the sense in which *A* intends, via its act of awareness (effect), the past and distant *B* (cause). Thus, sensitiveness to the continuities of causal sequences constitutes perception, and perception is response to the logic of nature. In perception, the animal organism may be, by intension only, beyond its spatio-temporal boundaries. And it is in this sense that the *actual* effect of *B* on *A* is retrogressively in *B*, and that the *actual B* is progressively in its effect on *A*. We might term these past and future potentials respectively. The being of both is logical and, in so far, they commune with one another.

Instead of lifting this logical structure out of the physical world, I have tried to show that it is identical with the intensional dimension involved in physical causation in space-time. The spatio-temporal structure I have called the extensional, and described nature as being, on the middle-ground of the perceptual situation, the fusion of the intensional and the extensional.

It should be clear by this time that I hold with Lovejoy that *B* enjoys causal independence of the percipient event at *A*. It should furthermore be clear how *such independence is not an argument for indirect perception.*

We have said nothing about error. But a theory of imagination and perspective based on our doctrine of intension and extension (identity and otherness) would contain the wherewithal to explain error. It is not the purpose of this paper to construct such a theory.

Let us conclude with a mere suggestion. If it is not *E* but rather *C* that is directly perceived in normal perception—the initial rather than the final term in the progressive causal series—in abnormal perception *E* does in fact become an unrecognized element in the part of the perceptual situation that constitutes the configuration of perceived objects, as for example in the case of the jaundiced eye. This, and the case of perceiving a green mountain as bluish through the medium of blue mist, are not cases of perceptual error at all in one obvious sense. But we must leave the matter here.

VIRGIL C. ALDRICH.

RICE INSTITUTE.

BOOK REVIEWS

Knowledge, Belief and Opinion. JOHN LAIRD. New York: The Century Co. 1930 (Century Philosophy Series). Pp. xi + 515.

To "believe" is a universal human experience. But only in English do we possess an adequate verbal expression for it. It has, therefore, been the privilege and historic duty of English thinkers to analyse the set of mental facts and epistemological problems associated with this experience,—a set of problems for which other people have no proper feeling or grasp. What is belief in contradistinction from knowledge on the one side, and mere opinion on the other? Is it a happy medium or a mild degree of assurance lying somewhere between full conviction and a vague conjecture? Is it at all a psychological term? Can it be measured by any degree of subjective feeling of assurance? (pp. 129–166). And what is knowledge? Is it necessarily conscious, cogitative, and evidential? Or is it (as Samuel Butler holds) like water for the fish, an expression of unhesitating adjustment, without foresight or afterthought, a really unconscious affair? Is knowledge at all definable? Or shall we paradoxically say (perhaps, with Mr. Cook Wilson) that it "is comprehensible only because it is inexplicable"? Is it a "sort of noetic insight," or merely a pragmatic response to "the experience of calamity"? What is its relation to doubt, inquiry, and judgment? (pp. 93–128). Does knowledge supply its own criterion, and is our self-consciousness a *conditio sine qua non* of every kind of epistemology? (pp. 58–90). If we agree to define knowledge as "evidenced certainty," what will remain of the territory of our "usual certainties"? In other words, on the strength of this definition, what, and in which sense, are we entitled to hold as certain (pp. 183–362), and what, and in which sense, as merely probable? (pp. 363–396). Would it not be safer to regard nearly all our primitive certainties as rational presumptions rather than as cer-

tainties completely evidenced? (pp. 397–460). What is the nature of faith? Is it a matter of intellectual conjecture, a new kind of probability, or is it soteriological and communal (pp. 460–499)?

I hesitate to accuse Mr. Laird of having a definitely fixed position with regard to any of these questions, although he definitely asks them. Throughout the whole book he carefully and skillfully avoids the embarrassing (for a modern philosopher) necessity of committing himself to any "ultimate" truth, or even unreservedly formulated point of view. There is always a "but" to every "yes." And Mr. Laird appears to be a master of the long forgotten art of what the ancients used to call *aporia*, the art of discussing problems without venturing any solutions. Unfortunately, however, he differs from the ancients in that he is more of an historian than dialectician. In his discussions he seldom pursues the track indicated by the winding structure of the problem itself, but cultivates the art of philosophical perambulation, to the extent even of "losing his way," following the landmarks indicated by names, and usually English names. It is either Samuel Butler, or Cook Wilson, at best David Hume or John Dewey, in opposition to, or in agreement with, whom the author's views are formulated. It is largely his own reading, and not the territory of the problem itself, in which he takes pleasure to perambulate.

It is, therefore, by no means an easy task from the mass of historical references, personal doubts, and truly brilliant "discussions," to extricate what might appear as the ultimate conclusion, or fundamental idea, of the whole work. I think, however, it will be fair to say that it is Mr. Laird's contention that not merely knowledge, but also belief and opinion, are both logical; that knowledge, belief, and opinion differ from each other, not in the degree of (psychological) assurance associated with each of them, but in the nature and the amount of logically certified evidence involved. For, belief is not incompatible with even complete (psychological) assurance, and is frequently understood to imply this condition. A man who asserts his belief in God intends to assert his invincible conviction. Belief, therefore, is not inconsistence with full and unquestioning assent. It is only inconsistent with that kind of (fully evidenced) assent which characterizes knowledge. Only knowledge claims complete *evidence* (pp. 130, 131, 157, 185).

This principle of noetic completeness which is advanced by the author as a distinguishing mark of knowledge is, however, very ambiguous, and presents a highly vulnerable point in his argument. Apart from the insecurity of the boundary lines between knowledge, belief, and opinion, assumed to be fixed on this basis, it is not clear just what is meant by "complete evidence." What is the criterion

of completeness? And how are we to know that in any given case the evidence is *not* complete? It may seem idle to ask such questions. They are so easy to answer. But they are meant here as a *reductio ad absurdum*. They are by no means easy, in fact—I think—impossible, to answer on the basis of the assumption just stated. If there is no alogical factor in knowledge (which, by the way, is the only thing that could possibly justify the existence of epistemology as a separate discipline alongside of logic); if knowledge is never a mere "sight," but necessarily an "in-sight"; if it means as much as completeness of logically certified evidence,—how can we *know* that portion of evidence which is not complete? By virtue of its incompleteness, it is not knowledge. And yet we know it. We know that it is incomplete. This kind of knowledge can not be an insight; it is a mere sight, i.e., facing a certain portion of evidence. In other words, without the alogical factor of mere "sight" we can not possibly claim any "in-sight." Intuitivism is just as necessary an ingredient of epistemology as is logism.

The book has deep and healthy roots in English tradition. It is an outcome of a long and obviously sympathetic study of Locke, Hume, and Mill, to whom lengthy discussions are devoted. Numerous other authorities are quoted, but almost exclusively from English sources. This is partly to be accounted for by the nature of the inquiry itself, inasmuch as it deals with the specifically English problem of belief; and partly—I feel—by the Forsytean temperament of the author who, with an obvious determination, misses no opportunity to emphasize Hume's priority to, and superiority over, Kant, or to allude to German tradition with a delicate and (one must admit) always effective humor. In certain respects, however, Mr. Laird's professional insularity is essentially detrimental to his own cause. On the whole, his work is in the nature of, and indeed an able contribution to, the phenomenology of knowledge and belief. And yet no mention is made of the Göttingen contributions to this field such as one finds scattered in Husserl's works, or in the (comparatively) recent contribution of C. V. Salmon to the elucidation of *The Central Problem of David Hume's Philosophy*.

HENRY LANZ.

STANFORD UNIVERSITY.

Principios de Crítica Filosófica. MOISÉS VINCENZI. Paris: Editions "Le Livre Libre." 1930. Pp. 223.

Diálogos Filosóficos. M. VINCENZI. Costa Rica: Tip. Trejos Hnos. Pp. 143.

The first of these volumes by the Costa Rican professor leans heavily on German and continental metaphysics, especially on Kant

and Descartes, with a touch of Spengler, these masters still being powers to conjure with in Latin America. The main purpose of the author is to secure more unity in criticism through the revision of its scientific, philosophic, esthetic, and religious evidences and principles, and if he approaches the subject primarily through the maze of philosophy he does not neglect the facts of science. The present conflict of schools, he thinks, is clear evidence of the absence of any profound critical sense and of a poverty of critical principles. He believes that criticism grew out of the necessity of human adjustment and has developed as a function of life. After reviewing and criticising the various theories of criticism, including those of Kant, Boileau, Saint-Beuve, Taine, and Hennequin, among others, he sets forth his own theory of criticism primarily in terms of the psychology of generalization, of the self, the unity of behavior, language, and logic. Self-criticism is treated with especial fullness, and also from the psychological standpoint of the functioning of the senses and of judgment, and from the standpoint of the social-environmental factors, such as climate, country, race, customs, culture, and social relations, which mould conduct. There are also two chapters on originality, in which the author sustains the theme that it is more difficult not to be than to be original in a highly complex and rapidly changing world like ours. In spite of the metaphysical terminology frequently used by the author, he handles his theme largely from a social-psychological point of view.

The *Philosophical Dialogues* are very well written, are in fact frequently very interesting reading. The setting is classical, the discussion taking place between Paul, the teacher, and Suetonius, the pupil. The themes include The Metaphysics of Unity, The Metaphysics of Knowledge, The Metaphysics of Liberty, The Second Dimension, Motion, and My Theory and Einstein's. Ordinarily the term "metaphysics" is here equivalent to social psychology and sociology. In the last three papers he sets forth a theory of relativity which he claims antedated Einstein's. He does not accuse the latter of plagiarism, but he does claim recognition for his own contribution, which he says has failed of general acknowledgment because he lacked opportunities for making it generally known. These two volumes are excellent samples of philosophical studies in Central America. The second volume carries an appreciative introduction by José Santos Chocano.

L. L. BERNARD.

WASHINGTON UNIVERSITY.

JOURNALS AND NEW BOOKS

REVUE PHILOSOPHIQUE. 57e Année, Nos. 1 et 2. L'homme et sa condition: *Fr. Paulhan.* L'hallucination dans le délire de persécution: *P. Janet.* Logique hilbertienne et psychologie: *Cl. Chevalley* et *A. Dandieu.* Contribution à l'étude des hypermnésies et des associations médiates: *R. Benichou.*

BULLETIN DE LA SOCIÉTÉ FRANÇAISE DE PHILOSOPHIE. 30e Année, No. 5. Mécanisme et Téléologie: Thèse, E. A. Singer; Lettres de A. Reymond, L. Robin et P. M. Schuhl.

BULLETIN DE LA SOCIÉTÉ FRANÇAISE DE PHILOSOPHIE. 31e Année, No. 1. La Science Orientale avant les Grecs: Thèse: *A. Rey;* Discussion: *A. Lalande, R. Lenoir, Xavier Léon, F. Marotte, A. Reymond, P.-M. Schuhl, Abbé Sesmat.*

REVUE DE MÉTAPHYSIQUE ET DE MORALE. 38 Année, No. 4. L'essence du romantisme: *D. Parodi.* Les paliers de la connaissance et la constitution spirituelle de l'homme: *J. Delvolvé.* L'Esthétique de Taine et son siècle: *R. Lenoir.* Y a-t-il une Philosophie chrétienne?: *M. Blondel.*

GIORNALE CRITICO DELLA FILOSOFIA ITALIANA. Anno XII, Fasc. V. La soggettività del reale secondo il fenomenismo: *Ferdinando Albeggiani.* La scepsi platonica (contin.): *Luigi Stefanini.* La filosofia mistica di F. H. Jacobi (cont.): *Bianca Magnino.*

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Barth, H.: Eidos und Psyche in der Lebensphilosophie Platons. (Philosophie und Geschichte) Tübingen: J. C. B. Mohr. 1932. 47 pp. 1.50 M.

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Tilgher, Adr.: Le Travail dans les moeurs et dans les doctrines. Histoire de l'Idée de Travail dans la Civilisation Occidentale. Paris: Félix Alcan. 1931. xv + 172 pp. 15 fr.

Tolman, Edward C.: Purposive Behavior in Animals and Men. (Century Psychology Series) New York: Century Co. 1932. xiv + 463. $5.00.

Varano, Francesco Saverio: Vincenzo de Grazia. (Biblioteca di Filosofia) Napoli: Francesco Perrella. 1931. 106 pp.

Varano, Francesco Saverio: Il Problema della Storia in Xénopol. Gubbio: Scuola Tipografica "Oderisi." 1931. 55 pp.

Varano, Francesco Saverio: L'ipotesi nella Filosofia di Ernesto Naville. Gubbio: Scuola Tipografica "Oderisi." 1931. 52 pp.

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NOTES AND NEWS

To the Editors of the Journal of Philosophy:

I was interested to note Mr. Eaton's remark, in the course of his review of Miss Stebbing's *Logic* (this Journal, Volume XXVIII, pp. 607–610) that *Principia Mathematica* is "the bible of the modern logician." May I suggest that Mr. Eaton's metaphor is singularly unhappy? In fact, it seems to me to be the one metaphor out of all that Mr. Eaton might have chosen, that he ought *not* to have chosen. For if there is one proposition true of "the modern logician," it is that he has no bible; and if there is one more, it is that *Principia Mathematica* is not his bible.

Let me anticipate misunderstanding on one point. I do not suggest, even by implication, that any other treatise in modern logic is of equal importance. But that is not to call *Principia Mathematica* a bible. After reading Mr. Eaton's own recent text-book, inspired so frankly by *P. M.*, I feel that there is a point about this business of the modern logician's bible. For if my memory serves

me correctly, the original of Mr. Eaton's metaphor exhibits several characteristics which are emphatically *not* present in *P. M.;* and only by way of a concession, it would seem, in Mr. Eaton's own admirable manual. That original aimed—I still rely on distant memories—to set forth for any who were conscious of the frailties to which the flesh is heir, a better way of living; to draw the attention of its students to sundry ways in which one may fail to achieve the good life; and to encourage its readers in the hope of salvation. My apologies for all this. My only point is that anyone who should turn to *P. M.* (or the text-books which it is beginning to inspire) for light on the elementary principles of valid inference, for an analysis of sundry ways in which the mind falls into error, or for assurance that by taking thought he could order his inferences more soundly —such a one, I say, would be disappointed. In fact, the further he would read in *P. M.* (or its progeny) the less he might feel inclined to face a very simple question often put to one man by another, namely, "Is that logically sound?"

ALBUREY CASTELL

UNIVERSITY OF MINNESOTA

Dean Roscoe Pound of Harvard Law School is to give at the New School for Social Research, New York City, a series of twelve lectures on the Ideal Element in Law, its conceptual foundations in successive ages: Law as universal, authoritarian, in the Middle Ages; law as political and ethical in the seventeenth century—the nation and natural law; the law of reason in the eighteenth century; individualist law; the idea of rights in the nineteenth century; in the twentieth-century revival of the universal idea.

Professor Morris Cohen of the College of the City of New York will give six lectures at the New School on The Will to Illusion, in individual and social life, in science, literature, art, and religion.

Professor Sidney Hook of New York University will discuss at the same institution in a series of twelve lectures the Philosophies of History. He will analyze the systems competing for supremacy today, explaining how philosophies of history are crucially significant during periods of transition from one social order to another.

The newly elected officers of the Pacific Division of the American Philosophical Association are as follows: President: Harold Chapman Brown; Vice President: Donald S. Mackay; Secretary-Treasurer: H. G. Townsend; new member of the Executive Committee, Hugh Miller.